

# OSA 5330 PTP Grandmaster

The OSA 5330 Grandmaster Clock generates and distributes precisely synchronised IEEE 1588-2008 time across IP-based networks

## Introduction

The Precision Time Protocol (PTP) is a solution for the distribution of synchronization over IP-based packet networks such as IP, IP/MPLS, Ethernet, IP/xPON and IP/xDSL networks.

Oscilloquartz offers a comprehensive range of PTP products covering all synchronization needs in the telecommunication domain. The OSA 5330 PTP Grandmaster is designed to operate with PTP Slaves from Oscilloquartz or from other vendors.

The OSA 5330 consists of a GPS-receiver and a PTP engine delivering PTP service over an Ethernet port.

An absolute timing accuracy of better than 100 nanoseconds to UTC can be achieved using this protocol as it uses hardware-generated timestamps.

The OSA 5330 uses an internal oscillator (OCXO as standard, factory upgradeable to Rubidium) disciplined by an integrated GPS receiver as a highly stable time base.

The use of precision oscillator options provides improved stability in holdover mode when the input source is interrupted for any reason.

The front panel has a large alphanumeric LCD, status indicator and 5-segment button for easy status and minimal configuration. The main configuration and monitoring is through a secondary network port providing web access.

So-called PTP Profiles are used to configure those parameters which are crucial for the interoperability with the connected slaves.

A range of additional output options are available, including serial, pulse, timecode and frequency - please contact our sales support team for more information.



## Highlights

- IEEE 1588-2008 (v2) Time protocol
- Distributes frequency, phase and time-of-day to remote PTP clients and slaves over a network
- Advanced hardware-generated timestamps
- GPS input source
- $\pm 100$  ns timing accuracy when locked to GPS
- Highly stable internal oscillator maintain accurate synchronization in holdover
- Choice of outputs include 1PPS, 10MHz, 2.048 MHz, NMEA 0183 & NTP
- 19 inch 1U high rack mountable chassis

## Typical Applications

Typical applications are the synchronization of 2G, 3G, cdma2000 and WiMAX base stations, of xPON optical line terminals, of DAB, DVB and DTV transmitters, etc.

PTP allows the distribution of accurate frequency, phase and time-of-day to these applications even in cases where the transport network is asynchronous.

The typical PTP architecture consists of a PTP grandmaster clock which delivers synchronization to a number of PTP slave clocks.

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## Typical Characteristics

### GPS-receiver Section

#### Antenna

Type: Roof antenna  
Frequency: L1 (1575 MHz)  
Power supply: 5 VDC

#### Choice of antenna cables

LMR-400: 20 m, 60 m or 120m with L/A  
Other lengths: upon request

#### Performance when locked to GPS satellites

Time accuracy: < 100 ns

### Alternative Auxiliary Inputs

**Frequency:** 1x 10 MHz BNC 50 Ω  
1x 2.048 MHz\*/ E1\* BNC 75 Ω  
**Phase:** 1x 1PPS\*, 2.5 Vpp, BNC 50 Ω  
**Time-of-day:** 1x NMEA 0183\*, RS-232, SUB-D 9p.

### Internal Oscillator

Holdover stability 1x10-10/day / 10us /day

### PTP Master port

**Protocol:** IEEE 1588-2008 (Version 2)  
**Network port:** Ethernet 10/100 Base T, RJ45  
**PTP profile:** User configurable  
**Supported:** - Unicast, Multicast and Mixed  
- 1-step or 2-step mode  
- Acceptable master table  
- 3rd-party PTP Slave

### Auxiliary Outputs

**Frequency:** 1x 2.048 MHz / E1\* BNC 75 Ω or RJ-45 120 Ω  
1x 10 MHz BNC 75 Ω  
**Phase:** 1x 1PPS, BNC 50 Ω  
**Time-of-day:** 1x NMEA 0183, RS-232, SUB-D 9p.

### Front panel indications

- 40x2 character LCD. Provides initial configuration
- 5-button keypad
- Status LED

### Management and User Interface

#### Local / Remote Management

- 1x Independent Ethernet 10/100 BaseT, RJ45
- HTTP - Web interface for configuration and monitoring
  - SNMP\* v1 enterprise MIB (RFC 1155, RFC 1157, RFC 1213)
  - DHCP
  - Firmware upgrade
  - NTP v3 (RFC 1305)
  - SyncView Plus compliant

### Power Supply

#### Dual DC Power Supply

Voltage: - 40 to -60 V DC

or

#### Single AC Power Supply

Voltage: 60 to 240V AC

Frequency: 47 to 63 Hz

### Mechanical

Size (W x H x D): 19" x 1U x 240 mm

Weight: 5 kg typical

### Environmental Conditions

#### Environmental

Operating conditions: 0°C to +50°C

Humidity: up to 95% non-condensing

Safety EN 61010-1

EMC & ESD EN 50081-1, EN 50082-1  
IEC 801 parts 2, 3, 4, 5 and 6

\*: contact Oscilloquartz for availability

Oscilloquartz SA reserves the right to change all specifications contained herein at any time without prior notice.

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